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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,769

03/03/2004

Kazunori Yamanaka

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10/18/2005

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EXAMINER

CAO, HUEDUNG X

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/790,769

Applicant(s)

YAMANAKA ET AL.

Examiner

Huedung X. Cao

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-9 and 11-13 is/are rejected.  
7) ☐ Claim(s) 10 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 03 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-9, 11, and 13 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicant's admitted Prior Art (Specification, page 1-3).

As per claim 1, Prior Art teaches an antenna coupling module comprised of a planar antenna and a substrate forming a planar superconductive high frequency circuit arranged in a perpendicular direction with respect to the element surface of said planar antenna and having said planar antenna and said superconductive high frequency circuit electromagnetically coupled (Specification, page 1, line 32-page 2, line 30).

Claim 2 adds into claim 1, wherein the perpendicular distance of the electromagnetically coupled space has a length of not more than  $1/4$  of the effective wavelength (Specification, page 3, lines 25-32).

Claim 3 adds into claim 2, wherein said effective wavelength includes from a microwave to a milliwave band (Specification, page 2, lines 31-36).

Claim 4 adds into claim 1, wherein said planar antenna and said superconductive high frequency circuit have a  $1/4$  wavelength type feeder line, respectively as a coupling circuit thereof (Specification, page 3, lines 25-32).

Claim 5 adds into claim 4, wherein a dielectric body is arranged between 1/4 feeder lines for coupling circuit of said planar antenna and said superconductive high frequency circuit (Specification, page 3, lines 25-32).

Claim 6 adds into claim 5, wherein at least one type of ingredient selected from the group consisting of magnesium oxide, mullite, forsterite, titanium oxide, lanthanum aluminate, sapphire, alumina, strontium titanate, magnesium titanate, calcium titanate, quartz glass, polytetrafluoro-ethylene, polyethylene, a polyimide, polymethylmethacrylate, a glass-epoxy composite, and a glass-polytetrafluoroethylene composite is used as the ingredient of the dielectric body (Specification, page 3, lines 4-8).

Claim 7 adds into claim 1, wherein an oxide superconductor is used as the conductor of said superconductive high frequency circuit, and said superconductive high frequency circuit has at least one type of circuit selected from the group comprised of a phase circuit, filter circuit, through line, delay circuit, coupler, distribution circuit, and composite circuit (Specification, page 2, lines 7-19, and lines 19-25).

Claim 8 adds into claim 1, wherein said planar antenna has at least one type of antenna element of the dipole type, patch type, and log-periodic type (Specification, page 2, lines 7-10).

Claim 9 adds into claim 1, wherein an oxide superconductor is used as the conductor for said planar antenna (Specification, page 2, lines 19-25).

Claim 11 adds into claim 8, wherein said planar antenna is a non-superconductive element which Prior art does not explicitly disclose. However, it is

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inherent that the planar antenna is made out with non-superconductive element for different kind of antenna system.

Claim 13 is similar in scope to claim 1; therefore, it is rejected for the same reason.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (Specification, page 1-3) in view of Shen (High temperature superconducting microwave circuits).

Claim 12 adds into claim 1, wherein said superconductive high frequency circuit or said planar antenna is cooled to not more than 100K which Prior art does not teach. However, Shen teaches the superconductive high frequency circuit or the planar antenna is cooled to not more than 100K is well known in the art (Shen, pages 104-105). It would have been obvious to one of ordinary skill in the art at the time the invention was made, in view of teaching of Shen to configure Prior art's antenna system as claimed, doing so it would help to get the desired frequency needed.

***Allowable Subject Matter***

5. Claims 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Inquiries***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao  
Patent Examiner



TUYET VO  
PRIMARY EXAMINER